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AUTHORS: ⑧ Lozinskaya, T.A. and Kardashev, N.S.

TITLE: ⑥ Deformation of the gaseous disc of the galaxy

PERIODICAL: ⑬ Astronomicheskiy zhurnal, v. 39: 5, 1962,

pp. 840 - 848

TEXT: F. Kahn and L. Woltjer (Astrophys. J., 130, 705, 1959) have suggested a systematic deformation in the distribution of interstellar hydrogen which is due to the effect of the intergalactic medium on the galactic halo. It is therefore of interest to investigate the hydrogen distribution in the galaxy. This was done between August, 1960 and 1961, at Krymskaya stantsiya FIAN (Crimean Station of FIAN) using the 21-cm radiotelescope described by B.M. Chikhachev and R.L. Sorochenko (Tr. 5-go Soveshchaniya po vopr. kosm. (Proceedings of the 5-th Conference on Cosmological Problems).

The antenna was in the form of a paraboloid with a half-power beam-width of 45' x 113'. The frequency-modulated receiver had a noise factor of about 4, a bandwidth of about 20 kc/s and a time constant of 50 sec. Fig. 3 shows the distribution of Card 1/3

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hydrogen in the galaxy as deduced from the present results. The numbers indicate the height above the galactic plane (for the circular-rotation model). Fig. 5 shows the hydrogen distribution using the data of Oort, Kerr and Westerhout (Monthly Notices Roy. Astron. Soc., 118, 379, 1958) and the present results. In this figure, all the distances were calculated by taking the K-effect into account with  $K = -2 \text{ km/sec kpc}$ . The open circles show regions of maximum hydrogen concentration (Genkin's model). The overall conclusion is that Genkin's model (Astron. zh., 38, no. 5, 1961) is a reasonable first-order approximation to the observed distributions. The most probable explanation of the observed deformation of the gaseous disc is that due to Kahn and Woltjer (Astrophys. J., 130, 705, 1959). There are 5 figures and 2 tables.

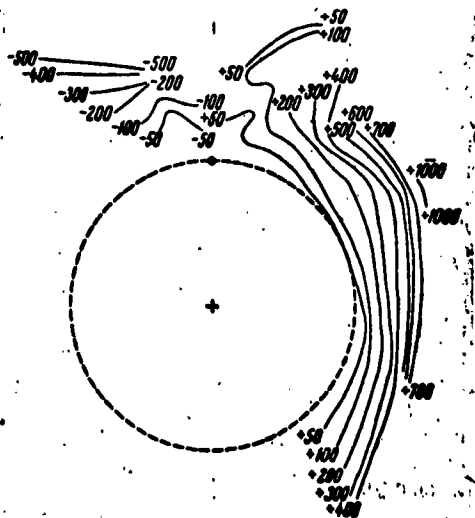
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(State Astronomical Institute im. P.K. Shternberg)

SUBMITTED: August 11, 1961

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Fig. 3:



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Fig. 5:

